

**WATER QUALITY DURING SPRING SPAWNING ACTIVITY.** Several water quality parameters are influenced by changes in reservoir discharge. High flows early in the season are usually lower in water temperature and higher in dissolved oxygen. Substantial reduction in instream flow allows the water temperature to rise quickly and dissolved oxygen levels drop. Sudden and large increases in reservoir releases decrease water temperatures. Surface water pH normally remains above 7.0 throughout the spring.

**ROANOKE STRIPED BASS SPORT HARVEST.** In 1991, an estimated 74,596 angler-hours were spent to harvest 26,934 striped bass in the Roanoke River. In addition, more than 98,000 striped bass were caught and then released. In 1992, an estimated 49,277 angler-hours were exerted to harvest 13,372 striped bass. Approximately 24,000 were released. The recreational harvest in 1993 was estimated to be 14,327 fish (52,932 angler-hours). An additional 10,500 striped bass were released during the legal harvest season. After the season was closed to harvest (fishing is still allowed) more than 46,200 fish were caught and released. Males comprised 87% of 1,329 striped bass sampled during 1991. Males and females ranged in age from 2-8 years. Most were three years old. Males comprised 87% of the fish sampled in 1992, and 56% in 1993. During the two springs, males ranged from 2 to 5 years old; females 2 to 11. Most males were ages 3 and 4, while most females were 4 years old. The 1989 year class comprised 78 and 67% of the harvest in 1992 and 1993, respectively.

**ASSESSMENT OF STRIPED BASS SPAWNING STOCK.** To examine changes in the relative abundance of striped bass collected by electrofishing among years, catch per unit effort data were analyzed. Results suggested that, by year class, striped bass are not present on the spawning grounds relative to their abundance in the population until at least age 4. To evaluate the changes in relative abundance of female among years a spawning index was developed. Index values have increased markedly from 1991 to 1993, mirroring increases observed in the estimates of striped bass egg production.

**LANDINGS OF STRIPED BASS IN ALBEMARLE SOUND.** Commercial fishermen landed 108,460 pounds of striped bass in Albemarle Sound in 1991, 100,549 pounds in 1992, and 83,735 pounds in 1993. Values of the annual totals were \$155,538, \$134,384, and \$105,084 for 1991, 1992, and 1993, respectively. No commercial landings have been recorded in the Roanoke River for the period 1987-1993. Catches made by recreational anglers in the Sound were 14,869 fish in 1991, 10,542 in 1992, and 11,404 striped bass in 1993. Released fish totals by years were 43,175 in 1991, 42,165 in 1992, and 13,241 in 1993.

**UPDATE ON STRIPED BASS REGULATIONS.** Since 1990, more than 80 proclamations and other forms of regulations have been applied to recreational and commercial fishing for striped bass by the State of North Carolina.

**STRIPED BASS SPAWNING IN ROANOKE RIVER.** An estimated 1.84 billion eggs were spawned in 1991, the fifth largest number through that year since 1959. Approximately 55% of the eggs were viable. Spawning was related to water temperature, and more than 90% of the eggs were collected when water temperatures ranged from 18-24°C. An estimated 9.65 billion eggs were spawned in 1992 -- the largest spawn recorded to that date for Roanoke River striped bass. The viability was 46%. A positive correlation was observed for viability and water temperature; a negative correlation observed for viability and water velocity. Eggs were collected through 23 June, but spawning activity was observed through the end of June and perhaps into July due to the moderate water temperatures in 1992. Spawning in 1993 was again record-breaking as an estimated 23.9 billion eggs were produced. Viability was 49%. Over half of the eggs were deposited in the first spawning event of the season, which occurred with a sudden drop in reservoir discharge upstream.